

smart machine smart grinding

grindsmart® 629xw

english



## smart grinding unlimited grinding solutions

The GrindSmart®629XW is a 6-axis super precision tool grinder for the manufacturing of high performance and specialty cutting tools which offer high added-value to end users. With a diameter range of 0.1 – 20.0 mm (.004"– 3/4") this machine model is the ideal choice for grinding superior quality tools.

Maximum uptime and unmatched productivity for both long and short batches make this 6-axis tool grinder ideal for manufacturing a wide variety of high precision cutting tools with minimum setup time. The GrindSmart®629XW is supplied standard with an ultra compact 6-position wheel changer and offers maximum flexibility as well as exceptional level of accuracy in comparison with standard 5-axis tool grinders.

The production of high quality tools has always driven the machine design methodology at Rollomatic. In order to offer enhanced precision and superior surface finish quality as well as maximum power – our proven shank guiding systems, linear/rotary scales on machine axis and a highly efficient synchronous spindle motor are part of the standard equipment included on the GrindSmart®629XW.

Environmental issues continue to be of great concern and Rollomatic has been working continuously at reducing CO<sub>2</sub> emissions and at optimizing energy efficiency. Through its commitments, our company follows the global initiative agreed upon by Switzerland with the United Nations in regard to the objectives of the Kyoto Protocol. In this respect, the GrindSmart®629XW is manufactured using mainly recyclable materials and has been designed with specific dimensions of the mechanical and electrical components enabling an optimal reduction of energy usage.



# with the GrindSmart®629XW universal precision tool grinder

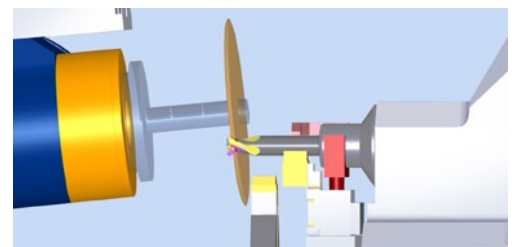
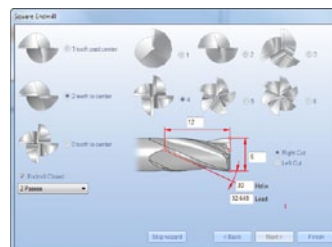
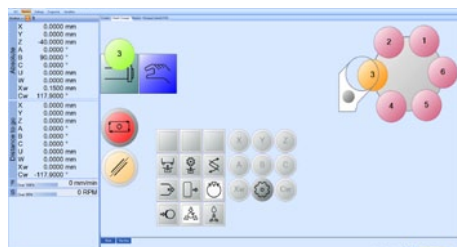


## VirtualGrind®Pro / unlimited programming solutions

The GrindSmart®629XW comes standard with Rollomatic's latest generation of programming software, VirtualGrind®Pro. This powerful and flexible software offers total freedom of design while its user-friendly interface enables programming of standard or specific tools in only a few clicks using the programming wizard. In addition, you can choose to program directly on the machine or on a networked PC, and all software updates from Rollomatic are free of charge.

A powerful, stable and extremely fast simulator enables generation of 3D images from the programmed tool. With this off-line software, you can visualize the movements of the machine before grinding in order to reduce setup time and enable verification and avoidance of possible collisions while increasing production time.

- Complete software package included as standard
- Free software updates during the entire machine life time
- Reduced setup time with 3D machine animation and collision check
- Integrated 3D simulator
- Programming of tools in only 5 clicks with the Wizard assistant
- Open source program structure for ISO programming possibilities





## Unmatched precision

The GrindSmart®629XW is equipped standard with high-accuracy scales on each linear axis as well as on the grinding wheel spindle rotary axis, thus offering optimum precision. A revolutionary (patented) shank guide system ensures the setting of the tool shank within a micron by using an extremely simple and repetitive setup procedure.

The GrindSmart®629XW is mounted with a torque motor on the rotary B axis. This technology enables high-performance servo tuning which provides a very high quality of surface finish, especially on tools with corner radii and ball shape.

## Advantages of the 6th axis

For applications like ballnose or corner radii endmills with 3 flutes or more, the 6th axis enables inclination of the relieving wheel when grinding the programmed clearance angles, which makes it easier to grind past center on the end of the tool without damaging the adjacent tooth. Even more important, this process ensures optimum accuracy of the tool geometry as the contact point on the wheel remains constant over the entire path instead of traveling around the grinding wheel and altering the point of contact as with the standard grinding cycle of a 5-axis machine.

In addition, the angular inclination of the wheels increases the flexibility and freedom of movements, especially when grinding tools with complex shapes.

## Performance, productivity, autonomy and reliability

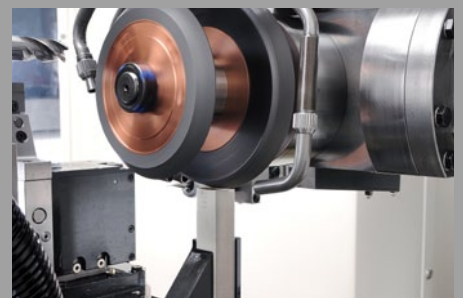
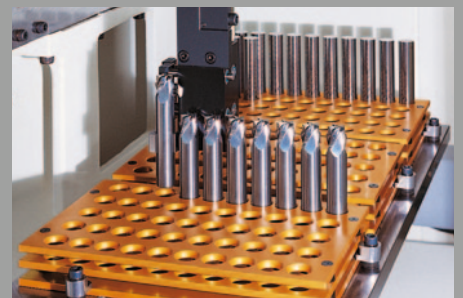
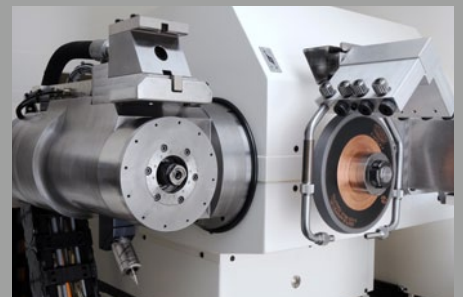
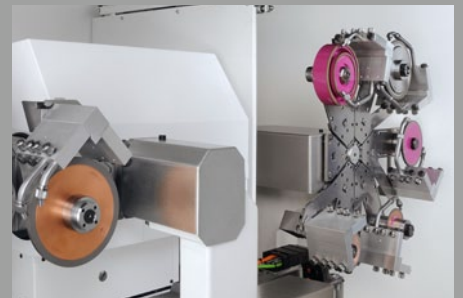
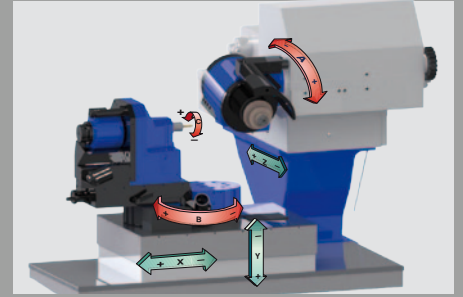
Also standard, is a reliable, high-speed robot loader which allows for unattended production. Blank diameters up to 20.0 mm (3/4") can be loaded automatically in just over 8 seconds.

With a machine utilization rate that can reach 99%, the GrindSmart®629XW offers an average productivity output superior to other brands of machines on the market, and within very tight tolerances without any human intervention.

The ultra compact design of the 6-position SmartChanger grinding wheel changer can accept up to 24 grinding wheels and allows for simultaneous changing of the wheel packs with associated coolant lines during the tool loading/unloading cycle in order to minimize dwell times, resulting in increased productivity.

As an added benefit, by combining the flexibility of the wheel changer with the Job Manager software the user has the ability to produce a series of tools with different geometries out of the same blank diameter with no human intervention.

The GrindSmart®629XW model is equipped with a highly efficient, synchronous spindle motor offering 14kW of power and a constant torque to allow grinding solid carbide tools of  $\varnothing$  0.1 mm (.004") as well as  $\varnothing$  20.0 mm (3/4"). Fully HSK50 compatible but with an enhanced design the wheel arbor attachment offer even greater accuracy and guarantees concentricity of less than 0.002 mm (.00008") each and every time the grinding wheel is changed. This system ensures homogeneous use of the circumference of the grinding wheel, consequently reducing wheel wear and improving the surface finish of the tools.



# SPECIFICATIONS

<b>GRINDING RANGE</b>	Ø 0.1 – 20.0 mm (.004" – .75")		<b>GRINDING MOTOR SYNCHRONOUS</b>	
<b>CONTROL</b>	<b>FANUC 30iMB</b>		Power	11 kW (15 HP), direct drive
X axis	Stroke	300 mm (11.8")	Peak Power	14 kW (19 HP)
	Fast travel	12 m/min. (473"/min.)	Rotation speed	500 – 12000 r.p.m.
	Encoder type	Absolute linear scale	Grinding wheels	Ø Max. 150 mm (6")
	Resolution	0.00001 mm (.0000004")	<b>WHEEL CHANGER SMARTCHANGER</b>	
Y axis	Stroke	220 mm (8.6")	Wheel pack capacity	6
	Fast travel	12 m/min. (473"/min.)	Number of wheels per pack	4
	Encoder type	Absolute linear scale	Attachment	HSK50E
	Resolution	0.00001 mm (.0000004")	<b>CLAMPING</b>	
Z axis	Stroke	180 mm (7")	Clamping system	Adapters Schaublin and Nann
	Fast travel	12 m/min. (473"/min.)	Clamping range	Ø 0.5 – 20.0 mm (.02" – .75")
	Encoder type	Absolute linear scale	Clamping type	Pneumatic
	Resolution	0.00001 mm (.0000004")	<b>ROBOT LOAD &amp; UNLOAD</b>	
A axis	Stroke	-50° to 90° (140°)	Number of tools	Up to 1000 (3 cassettes)
	Fast rotation	6480°/min.	Shank diameter	1.0 – 20.0 mm (.04" – .75")
	Encoder type	Rotary glass scale	Max. overall length	300 mm (12")
	Resolution	0.0000125°	Speed	65 m/min (2560"/min.)
B axis	Stroke	-75° to 135° (210°), direct drive	Clamping	Hydraulic
	Fast rotation	8640°/min.	<b>TOOL SUPPORTS</b>	
	Encoder type	Rotary measuring encoder	Shank support	«V» clamping, Hydraulic
	Resolution	0.00005°	Cutting portion support	«V» or Half moon, Hydraulic
C axis	Stroke	Tool rotation	<b>MACHINE</b>	
	Fast rotation	300 r.p.m.	L x W x H	2180 x 2240 x 2151 mm (85.8" x 88" x 84.7")
	Encoder type	Rotary, on AC motor	Weight	3500 kg (7716 lbs)
	Resolution	0.0001°	Total power	Maximum 18 kW 3 x 400V/25A

\* Specifications are subject to change without notice

